

Remarks/Arguments

Claims 1-32 are now pending in this application. In the December 12, 2003 Office Action, claims 1-14 and 17-32 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,269,254 to Mathis (hereinafter "*Mathis*"). Claims 15 and 16 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2002/0052968 to Bonefas et al (hereinafter "*Bonefas*").

For the reasons set forth below, the applicants respectfully request reconsideration and immediate allowance of this application. Prior to discussing the reasons why the applicants believe that the claims currently pending in this application are allowable, a brief description of the present invention and the cited reference is presented.

Summary of the Invention

The present invention provides a Radio Interface Layer (RIL) between the radio on a cell phone and the software of the cell phone. The RIL is an Application Program Interface (API) set that provides a level of abstraction between the radio and software of a cell phone. According to one embodiment, the RIL comprises a proxy layer and a driver layer. The RIL proxy layer is located just below application modules for communication with the applications. The RIL driver layer is located between the RIL proxy layer and the radio hardware to communicate with the proxy layer and radio hardware.

The RIL allows applications running on an operating system in the cellular telephone to issue commands without knowledge of the underlying radio structure of the cellular telephone and without specific knowledge of the cellular network being used. For example, modifying a device to operate on a GSM network instead of a CDMA network would only require replacing the RIL driver layer and the radio and the rest of the phone would work as it did in the GSM network.

The proxy layer is hardware-independent while the driver layer is hardware-specific. For this reason, the RIL provides a platform for third party software developers. Software applications may be easily written to work with the RIL because the applications use well-known top-level APIs which are sent to the RIL. The RIL will then

perform appropriate processing of these top-level APIs and, if necessary, send the appropriate command to the radio to perform a specific action. Similarly, radio manufacturers no longer have to worry about receiving and keeping track of calls from multiple client applications because all of these functions are handled by the RIL. Without the RIL, each component (i.e., TAPI, SIM manager, SMS manager, etc.) of the phone would have to understand how to communicate to the radio directly. Because it would be difficult for hardware manufacturers to implement a TAPI driver, a SMS driver, a SIM driver, etc., the RIL was created to sit between the radio and the TAPI driver, the SMS driver, the SIM driver, etc.

Summary of the Cited Reference

Mathis describes supporting a dual-mode call on a GSM radio telephone using a Java telephony API (JTAPI) and reducing the memory requirement for programs that are JTAPI compatible by grouping event classes. *Mathis* teaches using a JTAPI to interface Java application programs to service providers or to existing telephony APIs. Where GSM functions cannot be easily accessed using the existing JTAPI syntax and method signature, *Mathis* defines new methods or methods with different signatures. *Mathis* relies on applications written using JTAPI to achieve the desired dual mode call functionality specifically for GSM radio telephones. As will be discussed below, *Mathis* teaches specific use of JTAPI and GSM technology and does not teach utilization of a proxy layer for communication with applications and a driver layer for communication with the radio hardware and the proxy layer.

Drawings

The applicants have amended FIG. 2 to correctly designate the RIL proxy layer with reference number 235. The RIL proxy layer was inadvertently designated with reference number 215 in the original FIG. 2 as filed. Additionally, the applicants have amended FIGS. 1, 2, and 4 to eliminate the shading and increase the margins and FIG. 3 to increase the font size.

Claim Rejections - 35 U.S.C. §102 - Mathis

The Examiner rejected claims 1-14 and 17-32 under 35 U.S.C. § 102(e) as being anticipated by *Mathis*. The applicants respectfully submit that *Mathis* fails to teach, suggest, or describe each element of the embodiments of the present invention recited in claims 1-14 and 17-32.

Independent Claim 1

Mathis does not teach, suggest, or describe each recitation of independent claim 1. The applicants have amended independent claim 1 to clarify the abstraction capabilities of the recited embodiment. Specifically, *Mathis* does not teach, suggest, or describe, “a set of application programming interfaces (APIs) for abstracting out multiple radio technologies without knowledge of the telephony radio or cellular network” or “wherein the abstraction layer comprises a proxy layer and a driver layer.”

Mathis was designed to address “a number of problems [that] lie in the way of using JTAPI as a telephony API for a Global System for Mobile (GSM) radio telephone.” *Mathis*, column 2, lines 26-29. Therefore, *Mathis* teaches only using the GSM standard. Further support for *Mathis*’ exclusive teaching of using a GSM telephone can be found, *inter alia*, in column 3, lines 57-59; column 4, lines 54-58; column 5, lines 16-18; column 5, line 57 - column 6, line 2; and column 7, lines 2-3. Since *Mathis* teaches adaptation of JTAPI for use with a GSM radio telephone, *Mathis* does not teach, suggest, or describe “abstracting out multiple radio technologies without knowledge of the telephony radio or cellular network” as recited in claim 1.

✓ Further, *Mathis* does not teach, suggest, or describe an abstraction layer that comprises “a proxy layer and a driver layer” as set forth in claim 1. *Mathis* teaches Java applications using JTAPI commands for communication with other layers. *Mathis* does not teach a proxy layer and a driver layer. The December 12, 2003 office action equated the “Java RUN-TIME machine” in FIG. 8 of *Mathis* with the proxy layer recited in claim 7. The applicants disagree for the reasons stated below with respect to independent claim 7. Therefore, because *Mathis* teaches use of a GSM radio telephone only and fails to

teach an abstraction layer that comprises a proxy layer and a driver layer, claim 1 is allowable over *Mathis*.

Independent Claim 7

Mathis does not teach, suggest, or describe each recitation of independent claim 7. In particular, *Mathis* does not teach, suggest, or describe a proxy layer and a driver layer, “wherein the proxy layer transforms the API to an input/output control (IOCTL) code and sends the IOCTL code to the driver layer; and wherein the driver layer communicates with the proxy layer and the radio, the driver layer receiving an IOCTL code and transforming the IOCTL code into a command understood by the radio to perform the particular function.” As discussed above, *Mathis* does not teach an RIL comprising a proxy layer and a driver layer.

In the December 12, 2003 office action, the “Java RUN-TIME machine” described by *Mathis* is equated with the proxy layer of the embodiment of claim 7. The applicants respectfully disagree. The applicants submit that the Java RUN-TIME machine of FIG. 8 simply enables the Java code of the application to run. The Java RUN-TIME machine does not transform a called API to an IOCTL code and send it to a driver layer. Further, the applicants submit that neither FIG. 7 nor TABLE 3 of *Mathis* depicts a driver layer that receives the IOCTL code from the proxy layer and transforms it into a command understood by the radio to perform the particular function, as suggested by the office action. FIG. 7 of *Mathis* illustrates a network configuration where a JTAPI application runs on a remote workstation and communications with a centralized server that manages telephony resources. FIG. 7 does not identify a driver layer that communicates with the proxy layer and the radio. In fact, FIG. 7 of *Mathis* shows that the layer immediately above the hardware layer in the *Mathis* configuration contains a plurality of modules, XTL, TSAPI, TAPI, other APIs, rather than a driver layer as taught by the present invention. Accordingly, for at least these reasons, independent claim 7 is allowable over *Mathis*.

Independent Claim 9

Mathis does not teach, suggest, or describe each recitation of independent claim 9. In particular, *Mathis* does not teach, suggest, or describe a proxy layer and a driver layer, “causing the proxy layer to translate the RIL API into IOCTL codes; sending the IOCTL codes to the driver layer; translating the IOCTL codes to a command corresponding to the action, wherein the command will be understood by the radio; and sending the command to the radio.” For at least the reasons discussed above with respect to claim 7, independent claim 9 is allowable over *Mathis*.

Independent Claim 17

✓ *Mathis* does not teach, suggest, or describe each recitation of independent claim 17. In particular, *Mathis* does not teach, suggest, or describe “sending the RIL API call to a proxy; at the proxy, converting the RIL API call to a command understood by a radio driver; transmitting the radio driver command from the proxy to the radio driver; [and] transmitting a radio command from the radio driver to the radio.” As discussed above, *Mathis* does not teach a separate proxy layer and driver layer. Therefore, the steps involving the proxy and driver layers could not be taught by *Mathis*. Accordingly, claim 17 is allowable over *Mathis*.

Claim Rejections of Independent Claims 15 and 16 - 35 U.S.C. §102 - Bonefas

✓ The Examiner rejected claims 15 and 16 under 35 U.S.C. § 102(e) as being anticipated by *Bonefas*. The applicants have canceled claims 15 and 16. Consequently, the rejections are moot.

Dependent Claims 18 and 20-22

✓ The applicants have amended claims 18 and 20-22 to reflect the amendments made to independent claim 17. Because *Mathis* does not teach, suggest, or describe every element of claims 18 and 20-22 and because claims 18 and 20-22 depend from allowable independent claim 17, dependent claims 18 and 20-22 are allowable over *Mathis*.

Dependent Claims 2-6, 8, 10-14, 19 and 23-32

Because *Mathis* does not teach, suggest, or describe every element of claims 2-6, 8, 10-14, 19 and 23-32 and because claims 2-6, 8, 10-14, 19 and 23-32 depend from allowable independent claims 1, 7, 9, and 17, dependent claims 2-6, 8, 10-14, 19 and 23-32 are allowable over *Mathis*.

CONCLUSION

In view of the foregoing amendment and remarks, the applicants respectfully submit that the present application is in condition for allowance. Reconsideration and reexamination of the application and allowance of the claims at an early date is solicited. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

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PATENT & TRADEMARK OFFICE

Inventor: Shell et al
Docket No.: 60001.0039US01/MS158350.1
Title: Radio Interface Layer
Serial No.: 09/788,317

Fig. 1 Annotated Sheet Showing Changes

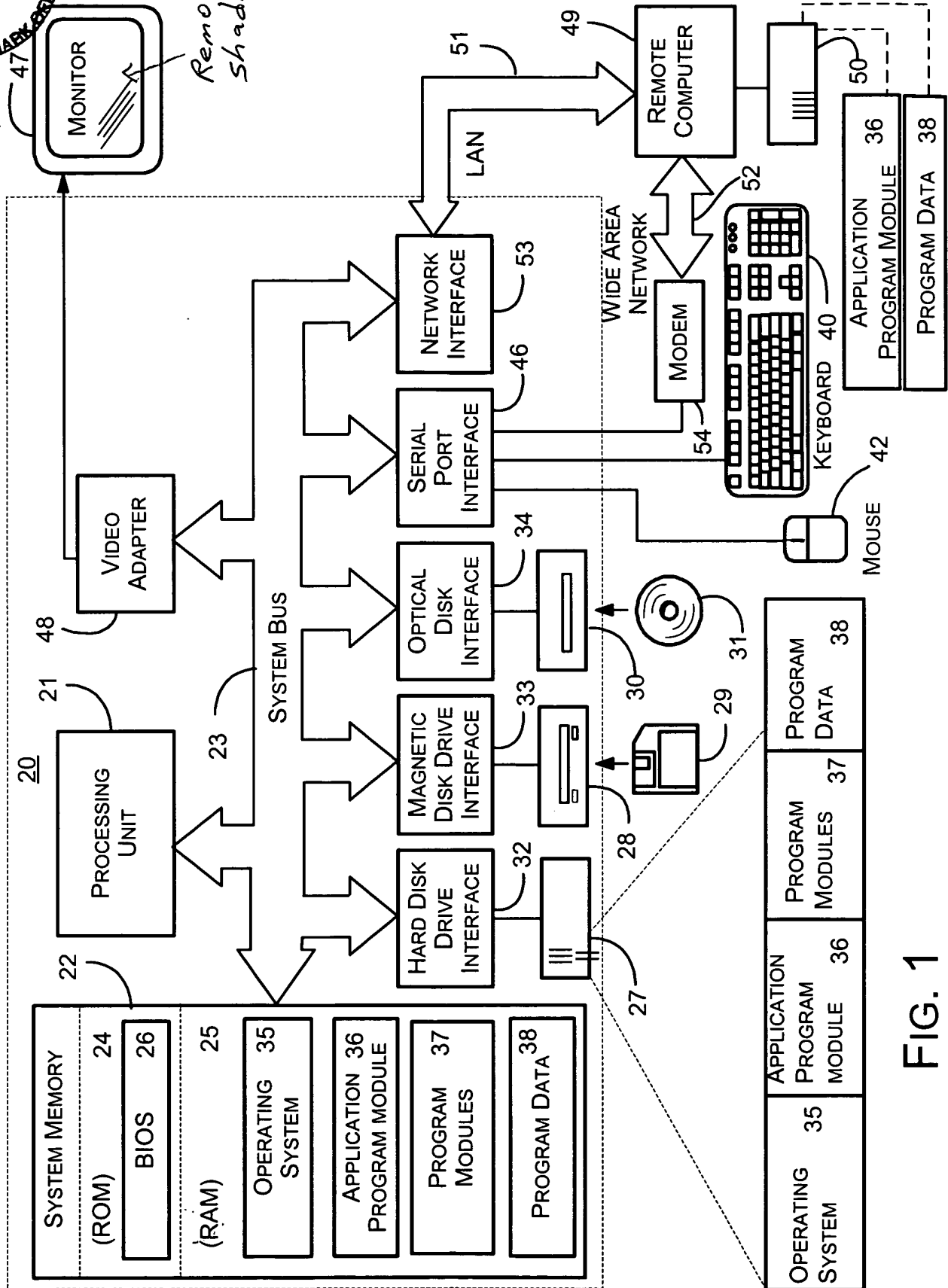
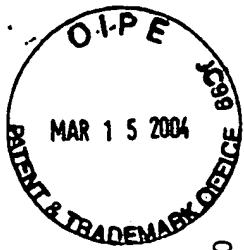


FIG. 1

Removed Shading

Increased Margins



200

Inventor: Shell et al
Docket No.: 0039US01/MS158350.1
Title: Radio Access Layer
Serial No.: 09/788,317

Fig. 2 Annotated Sheet Showing Changes

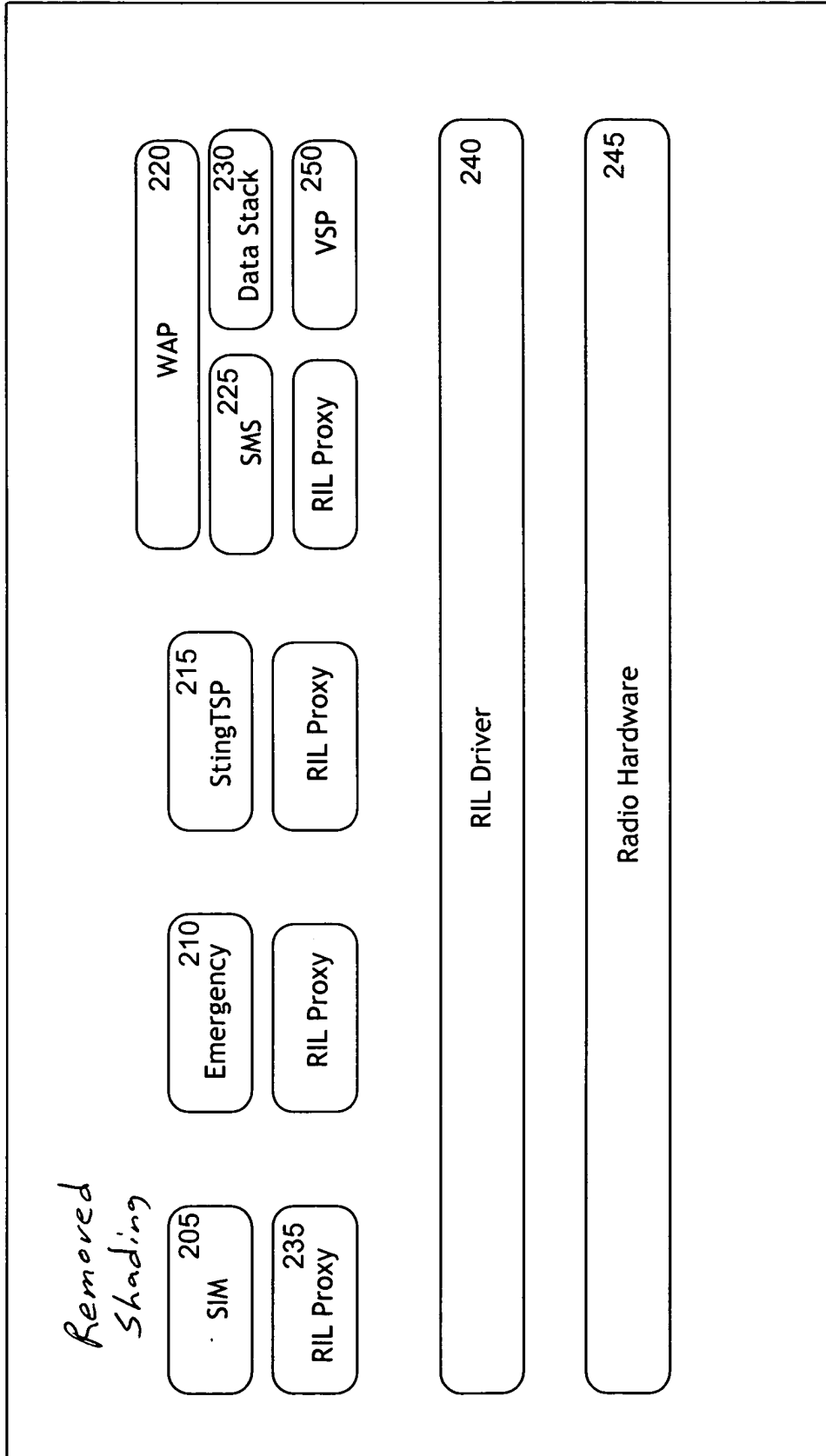


FIG. 2

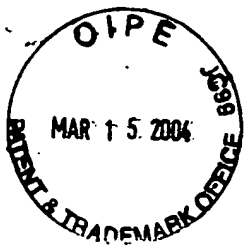


Fig. 3 Annotated Sheet Showing Changes

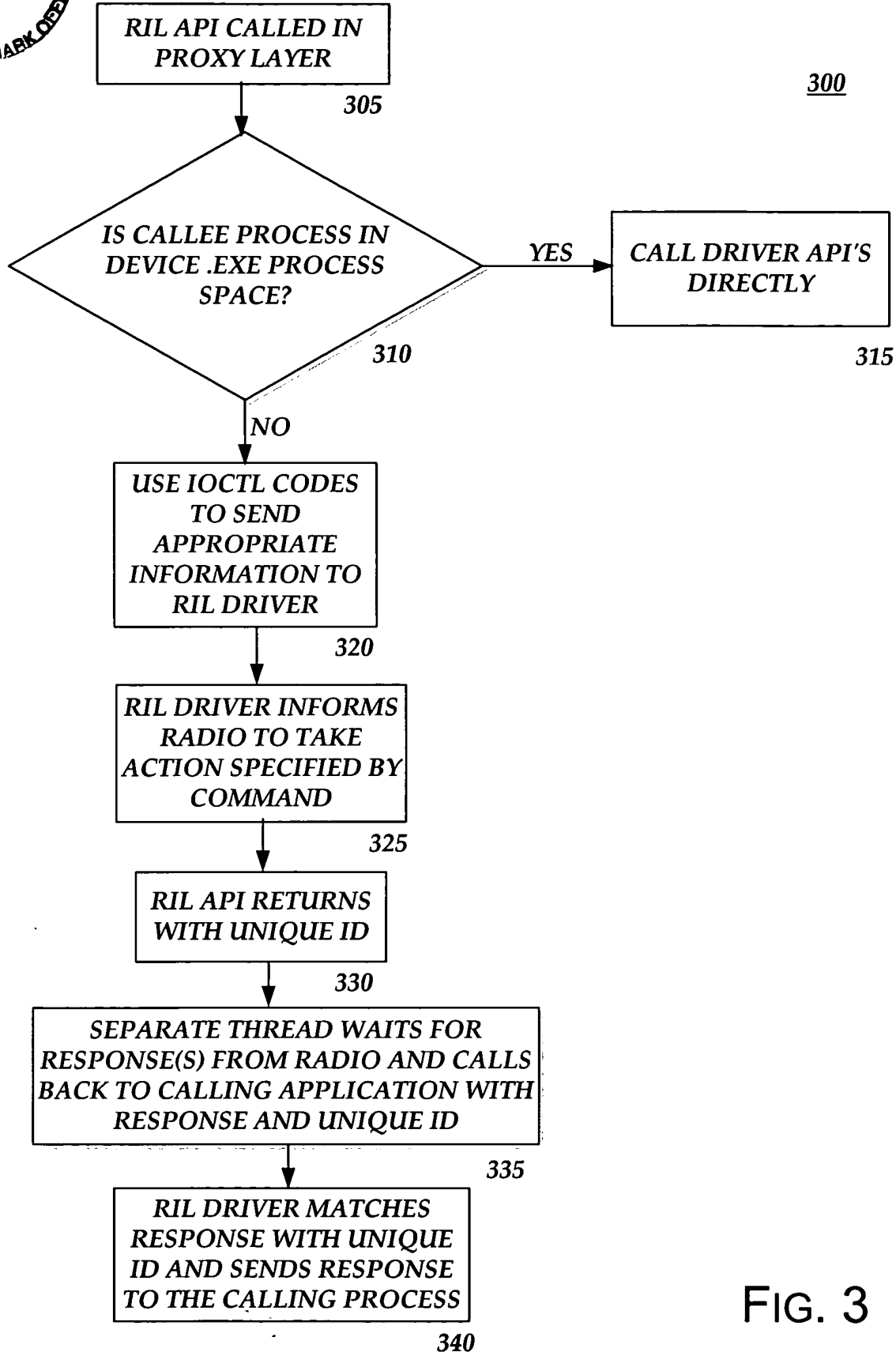


FIG. 3

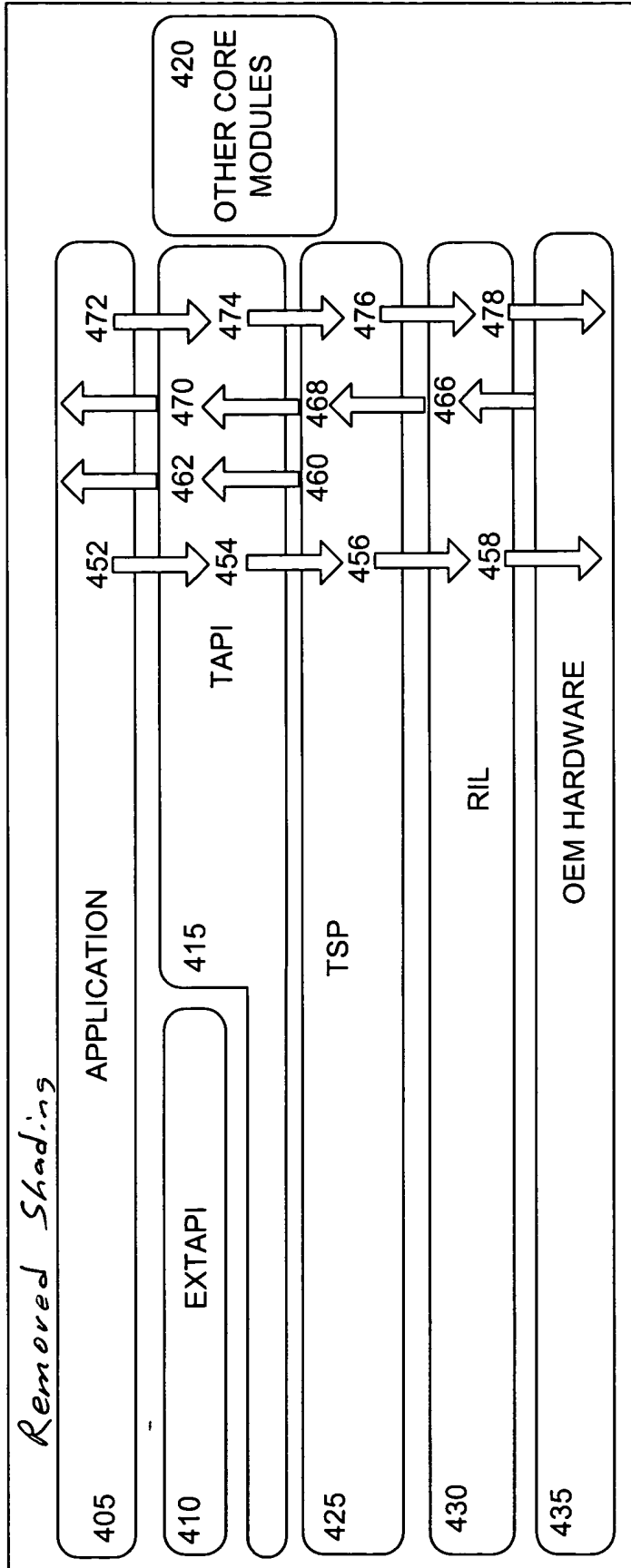
Increased
Font Size



Inventor: Shell et al
Docket: 60001.0039US01/MS158350.1
Title: Interface Layer
Serial No.: 09/788,317

Fig. 4 Annotated Sheet Showing Changes

400



*Increased
Margins*

FIG. 4